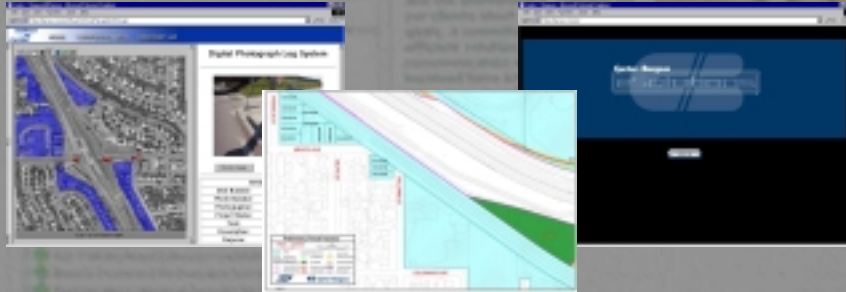


Design and Deployment of Internet-Based GIS Tools for the Southeast Corridor Parcel Acquisition and Right-of-Way Management



Matt Erker, Ken Carlson and Philip Lidov



Outline

- Project Description
- Problem Statement
- Requirements
- Solution
- Future Development
- Summary



Project Description



- Purpose
 - Combines highway and transit elements
 - LRT along I-25 and I-225
 - Additional highway lanes and improvements on I-25 and I-225
 - Links two regional employment centers

 Carter-Burgess

Project Description



- Purpose
- Limit

 Carter-Burgess

Project Description



 Carter-Burgess

- Purpose
- Limit
- Project Team
 - Carter & Burgess
 - RTD
 - CDOT
 - FHWA
 - FTA
 - Cities and Counties
 - Design/Builders

Project Description

Activity	Start Date	End Date	Activity	Start Date	End Date
1. ROW Acquisition	01/01/2001	01/01/2001	2. Construction	01/01/2001	01/01/2001
3. Construction	01/01/2001	01/01/2001	4. Construction	01/01/2001	01/01/2001
5. Construction	01/01/2001	01/01/2001	6. Construction	01/01/2001	01/01/2001
7. Construction	01/01/2001	01/01/2001	8. Construction	01/01/2001	01/01/2001
9. Construction	01/01/2001	01/01/2001	10. Construction	01/01/2001	01/01/2001
11. Construction	01/01/2001	01/01/2001	12. Construction	01/01/2001	01/01/2001
13. Construction	01/01/2001	01/01/2001	14. Construction	01/01/2001	01/01/2001
15. Construction	01/01/2001	01/01/2001	16. Construction	01/01/2001	01/01/2001
17. Construction	01/01/2001	01/01/2001	18. Construction	01/01/2001	01/01/2001
19. Construction	01/01/2001	01/01/2001	20. Construction	01/01/2001	01/01/2001
21. Construction	01/01/2001	01/01/2001	22. Construction	01/01/2001	01/01/2001
23. Construction	01/01/2001	01/01/2001	24. Construction	01/01/2001	01/01/2001
25. Construction	01/01/2001	01/01/2001	26. Construction	01/01/2001	01/01/2001
27. Construction	01/01/2001	01/01/2001	28. Construction	01/01/2001	01/01/2001
29. Construction	01/01/2001	01/01/2001	30. Construction	01/01/2001	01/01/2001
31. Construction	01/01/2001	01/01/2001	32. Construction	01/01/2001	01/01/2001
33. Construction	01/01/2001	01/01/2001	34. Construction	01/01/2001	01/01/2001
35. Construction	01/01/2001	01/01/2001	36. Construction	01/01/2001	01/01/2001
37. Construction	01/01/2001	01/01/2001	38. Construction	01/01/2001	01/01/2001
39. Construction	01/01/2001	01/01/2001	40. Construction	01/01/2001	01/01/2001
41. Construction	01/01/2001	01/01/2001	42. Construction	01/01/2001	01/01/2001
43. Construction	01/01/2001	01/01/2001	44. Construction	01/01/2001	01/01/2001
45. Construction	01/01/2001	01/01/2001	46. Construction	01/01/2001	01/01/2001
47. Construction	01/01/2001	01/01/2001	48. Construction	01/01/2001	01/01/2001
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51. Construction	01/01/2001	01/01/2001	52. Construction	01/01/2001	01/01/2001
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55. Construction	01/01/2001	01/01/2001	56. Construction	01/01/2001	01/01/2001
57. Construction	01/01/2001	01/01/2001	58. Construction	01/01/2001	01/01/2001
59. Construction	01/01/2001	01/01/2001	60. Construction	01/01/2001	01/01/2001
61. Construction	01/01/2001	01/01/2001	62. Construction	01/01/2001	01/01/2001
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83. Construction	01/01/2001	01/01/2001	84. Construction	01/01/2001	01/01/2001
85. Construction	01/01/2001	01/01/2001	86. Construction	01/01/2001	01/01/2001
87. Construction	01/01/2001	01/01/2001	88. Construction	01/01/2001	01/01/2001
89. Construction	01/01/2001	01/01/2001	90. Construction	01/01/2001	01/01/2001
91. Construction	01/01/2001	01/01/2001	92. Construction	01/01/2001	01/01/2001
93. Construction	01/01/2001	01/01/2001	94. Construction	01/01/2001	01/01/2001
95. Construction	01/01/2001	01/01/2001	96. Construction	01/01/2001	01/01/2001
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99. Construction	01/01/2001	01/01/2001	100. Construction	01/01/2001	01/01/2001

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- Purpose
- Limit
- Project Team
- Schedule
 - NTP by summer 2001
 - ROW acquisition is critical path

Project Description



- Purpose
- Limit
- Project Team
- Schedule
- Critical Elements
 - 19 miles long
 - 900 adjoining properties
 - Design/Build
 - ROW Acquisition

 Carter-Burgess


Objective

To ensure the successful completion of the project, the Carter & Burgess Survey Unit needed to establish a procedure that integrated an expedited acquisition process with the design/build approach.

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Requirements

- Data
 - Complex spatial and relational data
 - Longevity
 - Progressive accuracy
 - Live updates
- Users
 - Accessible to extended project team
 - User friendly/technically complete
 - Secure
- Output
 - Integrated with project schedule
 - Flexible/Customizable
 - Map-based

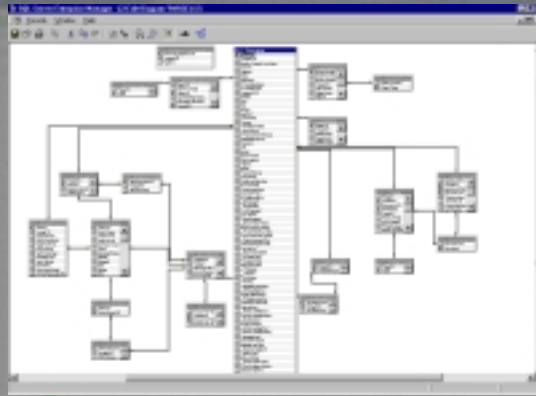
 **Carter-Burgess**

Requirements

<ul style="list-style-type: none"> • Data <ul style="list-style-type: none"> – Complex spatial and relational data – Longevity – Progressive accuracy – Live updates • Users <ul style="list-style-type: none"> – Accessible to extended project team – User friendly/technically complete – Secure • Output <ul style="list-style-type: none"> – Integrated with project schedule – Flexible/Customizable – Map-based 	<h2>Technical Approach</h2> <ul style="list-style-type: none"> Relational DB and GIS Relational DB GIS Relational DB Web-based Custom application Custom application Custom application Custom application Mapping Tools
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 **Carter-Burgess**

Solution



- Relational Database
 - MS SQL Server 7.0
 - Relational table structure
 - Users
 - Projects
 - Parcels
 - Parties (Owners)
 - ROEs
 - Titles
 - Appraisals
 - Stored Procedures

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Solution

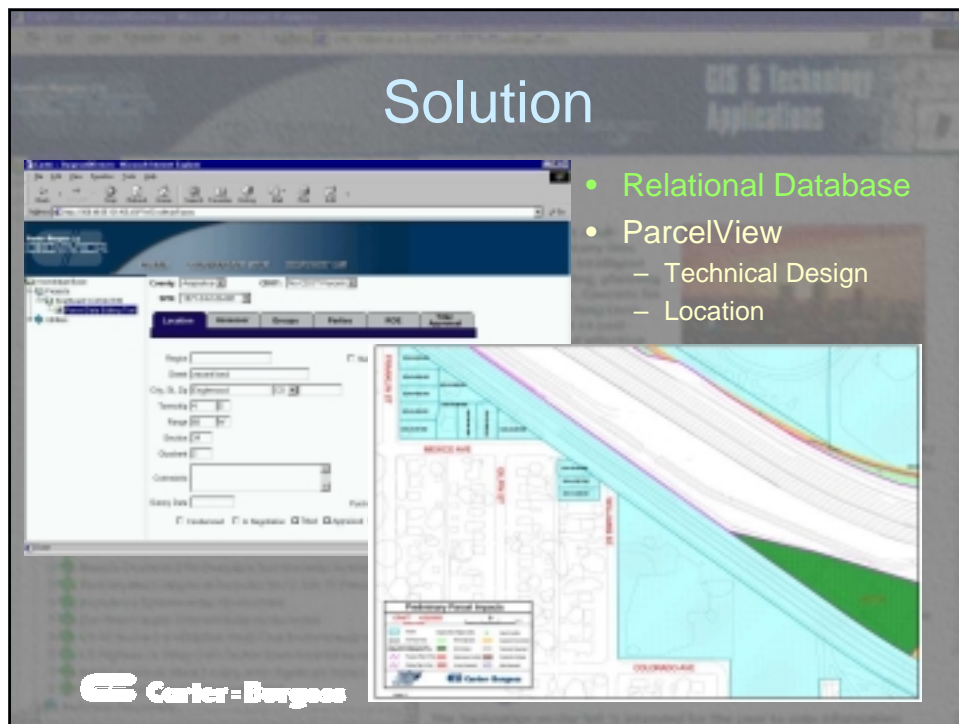
A screenshot of a web application form titled 'ParcelView'. The form contains various input fields for parcel details, including 'Parcel Number', 'Location', 'Size', 'Area', 'Volume', 'Depth', 'Width', 'Height', 'Area', 'Volume', 'Depth', 'Width', 'Height', 'Area', 'Volume', 'Depth', 'Width', 'Height'. There are also checkboxes for 'Is Parcel?' and 'Is Parcel?'. The form is designed for data entry and is part of a web-based application.

- Relational Database
- ParcelView
 - Technical Design
 - VB Webclass
 - Stateless
 - Data Environment Designer
 - HTML Forms
 - Microsoft Transaction Server

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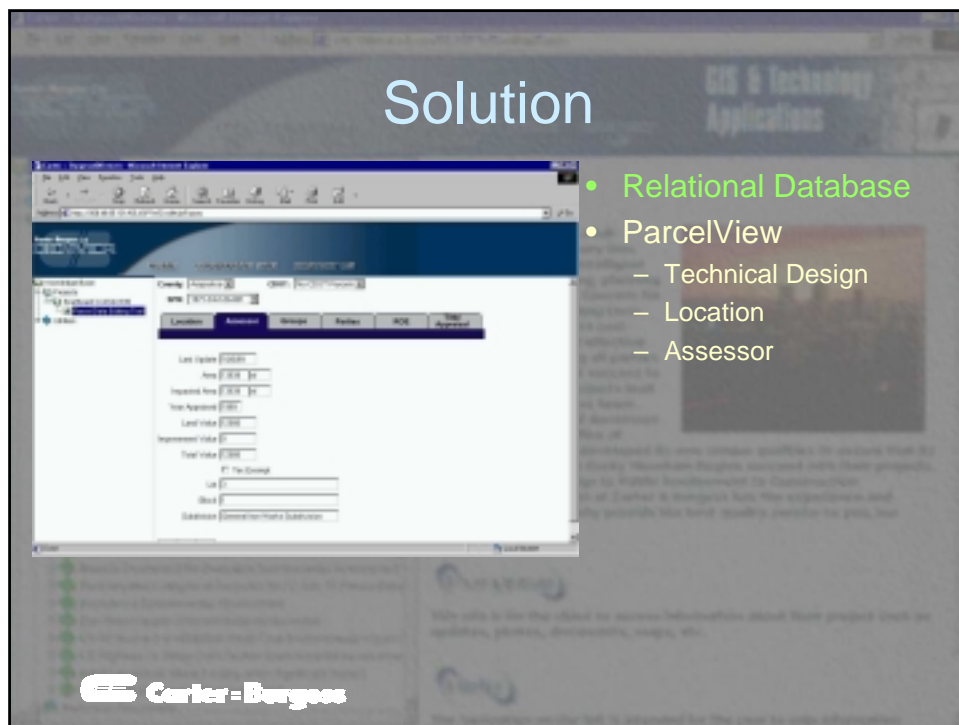
Solution

- Relational Database
- ParcelView
 - Technical Design
 - Location

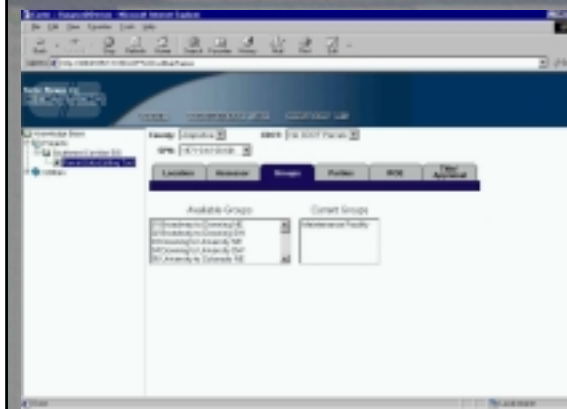


Solution

- Relational Database
- ParcelView
 - Technical Design
 - Location
 - Assessor



Solution



- Relational Database
- ParcelView
 - Technical Design
 - Location
 - Assessor
 - Groups

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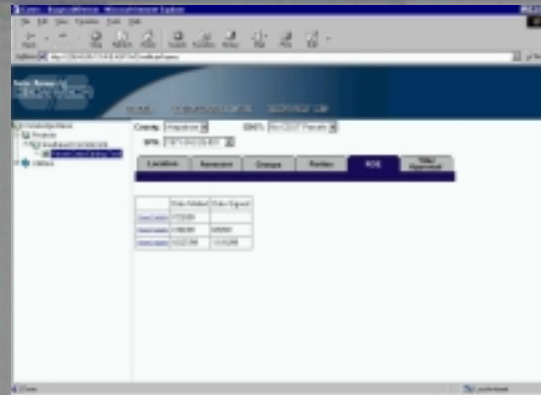
Solution



- Relational Database
- ParcelView
 - Technical Design
 - Location
 - Assessor
 - Groups
 - Parties

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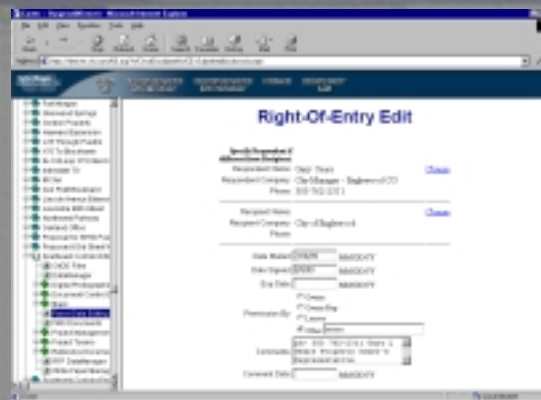
Solution



- Relational Database
- ParcelView
 - Technical Design
 - Location
 - Assessor
 - Groups
 - Parties
 - ROE

C = Carter = Burgess

Solution



- Relational Database
- ParcelView
 - Technical Design
 - Location
 - Assessor
 - Groups
 - Parties
 - ROE

== Carter = Burgess

Solution



- Relational Database
- ParcelView
 - Technical Design
 - Location
 - Assessor
 - Groups
 - Parties
 - ROE
 - Title/Appraisal

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Solution



- Relational Database
- ParcelView
- Parcel Scheduler
 - Technical Design

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Solution



- Relational Database
- ParcelView
- Parcel Scheduler
 - Technical Design
 - Location

Carter-Burgess

Solution



- Relational Database
- ParcelView
- Parcel Scheduler
 - Technical Design
 - Location
 - Plans

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C Carter = Burgess

© Carter-Burgess

- ### – Fair Market Value

C Carter = Burgess

- Relational Database
- ParcelView
- Parcel Scheduler
 - Technical Design
 - Location
 - Plans
 - Appraisals
 - Fair Market Value
 - Agreement
 - Clearance

== Carter = Burgess

- Relational Database
- ParcelView
- Parcel Scheduler
 - Technical Design
 - Location
 - Plans
 - Appraisals
 - Fair Market Value
 - Agreement
 - Clearance

Solution



- Relational Database
- ParcelView
- Parcel Scheduler
 - Technical Design
 - Location
 - Plans
 - Appraisals
 - Fair Market Value
 - Agreement
 - Clearance
 - Search

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Solution



- Relational Database
- ParcelView
- Parcel Scheduler
- Impact Maps
 - Arc/Info polygon coverage
 - State Parcel Number
 - Project limits polygon coverage
 - Project feature
 - Arc/Info for analysis
 - ArcView for mapping

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Solution



Parcel Address	Map	Target	Schedule
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890


ROW Schedule

Parcel Status: ■ Parcel Status ■ Parcel Activity

- Relational Database
- ParcelView
- Parcel Scheduler
- Impact Maps
- Project Schedule
 - Export tabular data to P3

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Solution



Parcel ID	Parcel Name	Parcel Type	Parcel Number	Parcel Status	Parcel Activity
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890
12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890	12345678901234567890

Parcel Schedule

Parcel Status: ■ Parcel Status ■ Parcel Activity

- Relational Database
- ParcelView
- Parcel Scheduler
- Impact Maps
- Project Schedule
- Web-based Maps
 - VB Application
 - Map Objects IMS
 - Database driven
 - Java Application
 - HTML Form

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Future Development

- Tighter coupling between GIS and database
 - Links from database to Microstation for increased spatial accuracy
 - Geodatabase/SDE
- ArcIMS
- GIS analysis tools

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Summary

- Integration of survey team and technologists provides an innovative approach to complex problem
- Efficiency gains, better teamwork, and shortened schedule offset cost of development
- Reuseable

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Contact Information

Matt Erker
Carter & Burgess, Inc.
(303) 820-5231
Erkermw@c-b.com

 Carter & Burgess